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ABSTRACT

The cost analysis of instruction is conducted according to principles of teaching and learning that have often become historically dated. Using today's costing systems prevents determination of whether cost effectiveness actually exists. The patterns of instruction in higher education and the systems employed for instructional cost analysis are not compatible. The problems are directly attributable to the accounting systems used and their corresponding analytical techniques. What is needed is a better understanding of the instructional process by those designing cost analysis programs. Emphasis on increased flexibility should be a paramount consideration. Particular emphasis must be placed upon defining and assessing the relationship between campus academic departments and those agencies referred to as support services that are assuming increasing responsibilities for the direct provision of instructional material. Resolution of this matter will necessitate a thorough re-examination of instructional costing procedures. (Author/LBH)

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# INSTRUCTIONAL COST ANALYSIS:

# HISTORY AND PRESENT INADEQUACIES

A Paper Delivered

to the

Third National Conference

on

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in

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November 13, 1975

Atlanta, Georgia

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# INSTRUCTIONAL COST-ANALYSIS

## THE UNDER-ACHIEVER IN HIGHER EDUCATION

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Higher Education is faced almost daily with either fiscal constraints or increased pressure for improved management procedures. Not only must program obligations be met, but the provider of funds demand assurance that desirable benefits result from the resources involved.

As one response colleges and universities have developed numerous non-traditional educational programs. Many of them center upon new instructional patterns, with the majority of these developments involving unique course designs. Cost-effectiveness and cost-efficiency have been indicated as two of the desirable benefits to be achieved through these endeavors.

Effectiveness, which is the measurement of resource performance, more commonly referred to as quality, has always presented a difficult riddle to unravel. Cost, the measure of economic value, while not generally considered as palatable, has been viewed as a more tangible area for inquiry in the pursuit of indices regarding the performance of educational institutions.

We are in an era today when the financial implications of both traditional and non-traditional educational programs are being increasingly scrutinized. The data is being requested, and the demands for cost examinations are being intensified. The evidence indicates, however, that contemporary cost-analysis techniques do not adequately reflect the costs of educational programs. This is especially true where non-traditional instructional programs are involved. Consequently

they do not facilitate accountability at the level demanded by various constituencies.

Contemporary approaches to determine the cost of instruction are thwarted by an inability to regularly subject both traditional and non-traditional instructional situations, particularly individual courses, to detailed cost-analysis studies. This dilemma prevails despite two facts; first, most educational changes focus directly on instructional methodologies and are the point at which costs are incurred; and second, instruction represents nearly 50 percent of most campus budgets, a 1974-75 total expenditure of nearly $35 billion.

As currently practiced, higher education cost-analysis does not provide totally reliable data. What it does provide is a means for demonstrating one interpretation as to how the pie was sliced.

Simply stated the contemporary dilemma is both philosophical and financial; we have broadened our notion of who the clientele for higher education is; we have sophisticated our concept of what constitutes the learning process; we have introduced numerous management systems into our daily lives; yet we are proceeding under the aegis of a turn-of-the-century accounting system. The complications and complexities involved in this operational contradiction are both numerous and subtle.

One major source of difficulty is that the technical processes for reporting instructional activities have remained essentially unchanged for 40 years.

These structures are, in turn, conceptually and practically related to conventional patterns of teaching and learning. During this period educational designers have developed numerous instructional alternatives.

This situation provides two hypothesis for my presentation; first, the instructional processes are changing; and second, the cost-analysis procedures are intimately related to the budget organization structures. The underlying theory is that the two hypothesis are not compatible.

A brief examination of some of the specifics which have contributed to this situation is in order.

Work that has been done on educational costing is of two types. First are the efforts to systematize budget organizations and procedures. Some early efforts in this regard date from 1910. Second, is an intermittent concern for the ability to conduct cost studies.

During the next few minutes we'll look at both the budgetary structures and the costing practices.

This procedure is important because we must understand how the budgets are organized in order to understand how the process of cost-analysis works.

First, the budget structures. Most institutions of higher education currently organize their budgetary information according to one of two basic formats. The first comprehensive endeavor to organize educational financial data occurred some 40 years ago and represents the efforts of a national committee of college and university business officers. The second is the relatively recent series of activities undertaken by the National Center for Higher Education Management Systems -- NCHEMS.

The first nationally organized effort to systematize the budgetary processes of colleges and universities was published in 1935. Prepared by the National Committee on Standard Reports for Institutions of Higher Education, their structure centers on a system of account classifications which has been modified twice but remains essentially intact today.

The initial revision, in 1952, was developed by the National Committee on the Preparation of a Manual for College and University Business Administration.

Additional changes were made in the third edition, sixteen years later, in 1968. This version was compiled by the National Committee to revise College and University Business Administration.

With a major thrust being information exchanges, the changes developed over the years have been directed primarily at refining and sophisticating the original design. Each of these three plans uses in its classification structure an organizational pattern which delineates several major functions or purposes under the general categorical heading of "Education and General".

Alterations made within this functional listing in the 1952 revision were minimal, involving the functions of "administration" and "extension".

The 1968 revisions expanded the "research" and "general expense" functions.

It is important to recognize at this juncture that the three functions which normally reflect the general mission of an institution of higher education, "research", "public service", and especially "instruction", have remained virtually unchanged since 1935. The series of publications establishing this structure have been described as the "Bibles of college accounting".

The latest entry in this exhibit of budget structures emerges from studies undertaken by the National Center for Higher Education Management Systems -- NCHEMS.

The NCHEMS "Classification Structure". A program-oriented budgetary

organization system, has two major divisions. The first division, "categories", has two parts: "primary and support". The second division identifies entries for the "primary" and "support" programs. The "primary" ones are -- "instruction", "research", and "public service". The "support" programs are -- "academic", "student", and "institutional support", "independent operations", and "scholarships and fellowships".

The relationship between the 1968 version of the original budget structure and that developed at NCHEMS demonstrates that the major emphasis has been placed upon repackaging activities considered to be of a "support" nature.

Comparison of the NCHEMS classification system with the original chart of accounts proposed in 1935 reveals that, as far as structural changes are concerned, we have practically come full circle.

With this brief historical portrait of higher education budget patterns in mind we now move to the second area of investigation, cost-studies.

Remember that instruction, research, and public service remain virtually unchanged. For costing purposes this is an important factor.

Cost-analysis activity during this 40 year period has resulted in two major plans, both of which coincide with the two budget formats designs discussed.

The first proposed system for cost-analysis was developed by the same national committee that designed the original budget structure.

While this early approach was complex and cumbersome it is of special significance because "most of the cost-analysis procedures currently in use are only modifications of this . . . . method."

Their two costing procedures, one "short" and one "detailed",

were incorporated in their 1935 report.

The short procedure has two stages, The first, total instructional costs, allocates charges for instructional overhead among departments and divisions. Full-time equivalent students, abbreviated as FTE, is the cost distribution parameter. The second stage assigned instructional salary costs according to either student credit hours or FTE students. Unit-costs, the ultimate goal of the whole process, are determined according to the same credit hour or FTE parameters. In other words instructional costs are a function of enrollment.

The detailed procedure has three sections. Instructional faculty and staff salaries are assigned according to time allotments. Other costs are allocated, and unit-costs are calculated, according to either student credit hour or FTEs. Once again instructional costs, regardless of the sources are an enrollment driven analytical technique.

The second major effort directed at the development of cost-analysis procedures eminates from the recent studies by NCHEMS.

Employing a relabeling procedure for essentially the same process, NCHEMS has identified analytical levels of academic discipline, field of study, student level, and degree type. They have, in essence, broadened the application and interpretation of the data. Direct discipline unit-costs, based upon instructional budgets, are determined according to student credit hours or student contact hours. They are used for both historical purposes and future estimations.

Full costing which brings together data from all programs, generates degree costs based on direct, allocated, and indirect charges all of which are influenced by assignment parameters. The assembled unit-costs are multiplied to achieve an expenditure per degree.

Both NCHEMS and the original system employ various strategies for moving funds from one program to another in an effort to assign costs based on the considered point of expenditure.

In all of the cost-determination plans mentioned considerable emphasis is rightfully placed upon the function of instruction. The numerous techniques which have evolved to probe the inner-workings of the instructional program allow us to slice this portion of the pie and to announce that we have determined costs. All we have really succeeded in doing is dividing the pie and accounting for all the pieces.

Several problems have emerged from this discussion. The lack of agreement regarding the analytical unit, be it credits, FTEs or something else, is one. This factor is highlighted by cost data, which when moved to, from and within the major function of instruction, is totally reliant upon enrollment indicators. Another difficulty is the use of the same unit, whatever it might be, as both an input and an output device. Any accountant will tell you this is more of an exercise in gymnastics than intelligence gathering.

The ripple-effects of these techniques are seen when full-costing makes distributions which rely on indices related to enrollments, on cost-averaging systems, and on credit hour characteristics.

Employment of common budget distribution parameters provides a distorted cost picture for each activity involved. This procedure causes all courses with equal enrollments to cost the same regardless of the instructional methodology employed or the resources consumed.

The parameters used for such cost assignments reflect predetermined judgments which are not conducive to accurate costing. They are, rather, a means of dividing up the budget and assigning various components

to different functions or programs.

There is, however, a much more serious and complex problem - one that speaks directly to the process and the cost of instruction.

It has been demonstrated that the major cost-analysis techniques employed determine instructional costs from data available in the major budgetary purpose of instruction. Furthermore, they pay little, if any, attention to the financial implications of individual courses, the actual point of cost incursion.

It has been stated that the cost of instruction has a single variable -- the size of the instructional budget. This simplistic view is the essence of our dilemma today.

The fact is that many traditional and most non-traditional programs are highly dependent upon services provided through campus departments housed within budget functions other than instruction. These relationships, which frequently represent integral course components, remain for all practical purposes, un-recognized in todays costing procedures.

In summary the cost-analysis of instruction is conducted according to principles of teaching and learning which have become, in many cases, historically dated. Consequently, using today's costing systems we are unable to determine whether cost-effectiveness exists or not.

The patterns of instruction in higher education and the systems employed for instructional cost-analysis are not compatible. The problems are directly attributable to the accounting systems used and their corresponding analytical techniques.

What is needed is a better understanding of the instructional process by those designing cost-analysis programs. Emphasis on increased flexibility should be a paramount consideration.

An integral ingredient must be mechanisms which allow for a clearer recognition of the resources required and utilized in the instructional process. This should be coupled with less use of common cost distribution parameters.

Particular emphasis must be placed upon defining and assessing the relationship between campus academic departments and those agencies referred to as "support" services who are assuming increasing responsibilities for the direct provision of instructional material.

Resolution of this matter will necessitate a thorough re-examination of instructional costing procedures.

Without appropriate attention being given to these factors another half-century may well pass minus the ability to determine the costs of instructional programs.